

INTERSTATE COMMERCE COMMISSION.

REPORT OF THE CHIEF OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE KANSAS CITY SOUTHERN RAILWAY NEAR ALLENE, ARK., ON MAY, 14, 1922.

June 22, 1922.

To the Commission:

On May 14, 1922, there was a derailment of a passenger train on the Kansas City Southern Railway near Allene, Ark., which resulted in the death of 1 employee, and the injury of 2 passengers, 1 mail clerk, 1 express messenger and 1 employee.

Location and method of operation.

This accident occurred on the Fourth District of the Southern Division, extending between De Queen, Ark., and Snaps, La., a distance of 124.7 miles, which in the vicinity of the point of accident is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred about $1\frac{1}{2}$ miles south of Allene, approaching this point from the south there are about 3 miles of tangent. The grade is descending for northbound trains, for approximately 3,000 feet, varying from 0.1 to 1.01 per cent and extending to within about 1,710 feet of the point of accident, from which point it is level. Just north of the point of derailment is located a pile-cent trestle, 48 feet in length, known as bridge B-458. The track in this vicinity is laid with 85-pound rails, 33 feet in length, single-spiked, with an average of 20 treated hard wood ties to the rail, and ballasted with gravel about 12 inches in depth. Under special rules in the time-table the speed of passenger trains in the territory within which this accident occurred is restricted to 45 miles an hour, however, on the class of engine involved, an additional restriction is imposed by bulletin, limiting the speed on descending grades to 35 miles an hour. The weather was cloudy at the time of the accident, which occurred at about 11.30 p.m.

Description.

Northbound passenger train No. 2 consisted of 1 combination mail and baggage car, 1 baggage and express car, 1 coach, 1 chair car, and 2 Pullman sleeping cars, in the order named, all of steel-underframe construction, hauled by engine 804, and was in charge of Conductor Williams and Engineer Woodson. This train left Ashdown,

about 10 miles from the point of accident and the last open telegraph office, at 11.14 p.m., 7 minutes late, made a stop at Milton, 5 miles beyond, and while traveling at a speed estimated to have been between 40 and 50 miles an hour was derailed on account of a rail overturning.

Engine 304 was derailed to the west and came to rest on its left side at the base of a 10-foot fill, approximately 454 feet beyond the point of derailment, while the tender rested on the embankment. The first car was derailed to the east and came to rest bottom up, parallel to the track nearly opposite the engine, the next three cars were also derailed, but remained upright. The east wheels of the fifth and sixth cars remained on the rails, while the west wheels rested on the overturned rail. The employee killed was the engineman.

Summary of evidence.

Fireman Griffiths noticed an unusual rocking of the engine, followed by a severe sway just before the accident occurred, he felt the engine jolting while crossing the bridge, and thought this was caused by the trailer wheels being on the ties, looked toward the engineman's side of the cab, saw the air-brake valve in the emergency position, reverse lever in advance of the center of the quadrant about 3 notches, and then he jumped, stating that at this time Engineman Woodson was endeavoring to close the throttle. Fireman Griffiths considered the roadbed spongy in the vicinity of the point of accident, and also said the engine had not been riding well, he thought the swaying of the engine was caused by excessive lateral motion at the trailer journals, and irregular track, this last condition being aggravated by a recent rainfall. He had made no examination to determine the extent of the lateral motion and did not know whether Engineman Woodson had reported it.

Fireman Griffiths, Conductor Williams and Brakeman Mason estimated the speed of the train at the time of the accident to have been about 40 miles an hour. Conductor Williams had not noticed any unusual rocking of the train prior to the accident. Messenger Divoisss, who has been lying on a cot in the baggage car just before the accident occurred, said that this car rocked to such an extent it was necessary to place the cot crosswise the car in order to remain on it with any degree of comfort. Express Messenger Lacelle thought the speed unusually high, Train Auditor Wilkes thought it was 50 miles an hour, as did News Agent McDonald, who had had a year's experience as a fireman.

Examination disclosed the first mark of derailment to be an overturned rail on the west side of the track, beginning at a point about 19 feet 2 inches from its receiving end, the inside flange of this rail was flattened, apparently caused by a wheel tread, while on the web of the gauge side there was a mark apparently made by the edge of a wheel rim, this mark continued onto the adjacent rail. Shortly after the accident occurred the tops of the ties were dressed with an adz, thereby obliterating all the marks that existed prior to, or which were caused by, the derailment; however, the first tie south of the point where they were dressed showed outward lateral wear of $\frac{3}{8}$ inch, the next two ties showed $\frac{3}{8}$ inch lateral wear, the fourth $\frac{5}{8}$ inch, and the fifth $\frac{1}{4}$ inch, for a considerable distance south of this point the ties were sound and showed very little evidence of lateral wear. The first wheel mark on the ties on the east side of the track was at a point in excess of 200 feet beyond the first mark of derailment. Measurements of the elevation taken at rail joints and centers for a distance of approximately 800 feet south of the point of derailment, showed the track to be level in only two places, the maximum variation being $1\frac{5}{8}$ inches, while the gauge for this distance was from $\frac{1}{8}$ to 1 inch wide.

General Roadmaster Anderson stated that it is the practice not to allow the elevation to exceed a variation of over $\frac{1}{2}$ inch, which he considered safe for the schedule speed, also that ballast had been unloaded in the immediate vicinity of the point of derailment during the month of March, 1922, at the time of the accident, however, the track at this point had not been resurfaced.

Section Foreman Hufstetler arrived at the point of accident about 2 hours after its occurrence, stating that at that time the spikes on the inside of the overturned rail were pulled, and the outside flange of the rail had cut into the ties to such an extent that it was necessary to dress them in order to obtain a uniform bearing surface for the base of the rail, he said at this time he observed no marks on the ties indicating lateral rail movement. Section Foreman Hufstetler further stated that the track in the vicinity of the point of accident and adjacent thereto, had been raised twice within the two weeks prior to the accident, also that the roadbed under this section of track was spongy in character.

Engineman Cranor, who was riding in the fourth car as a passenger, stated that he operates trains cautiously over this particular section of track, as the roadbed is spongy, but he considered the track safe for a speed of 40 miles an hour.

Engine 804 was of the 4-6-2 type, having a total weight of 258,000 pounds, a driving wheel base of 13 feet 6 inches, and a total length of 49 feet 7½ inches. An examination of this engine after the derailment failed to disclose anything which could have caused the accident, while recent engine inspection reports do not indicate the existence of excessive lateral wear.

Conclusions.

This accident was caused by a rail overturning, due to excessive speed over uneven track.

According to the statements of members of this train crew, at the maximum the train consumed only 16 minutes in traveling the 10½ miles between Ashdown and the point of accident, therefore, taking into consideration the speed restriction of 8 miles an hour inside the city limits at Ashdown, the stop at Wilton, the 35-mile-an-hour restriction for this class of engine on descending grades, several of which are located between these points, and the condition of the wreckage, it is evident that this train was traveling at least the maximum speed of 45 miles an hour, permitted under the time-table rules. The investigation developed that there was considerable unevenness in the surface of the track, and undoubtedly this condition, coupled with the rate of speed at which this train was traveling, caused the engine to rock to such an extent that the rail overturned.

All the employees involved were experienced men, at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. Borland.

Chief, Bureau of Safety.